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Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063

FILE

Raphael 1-15-90

Certificate

Chemistry, Microbiology, and Technical Services

CLIENT: Alaskan Copper Works
P.O. Box 3546
Seattle, WA 98124
ATTN: Raphael Acholonu

LABORATORY NO. 19534

DATE: Jan. 9, 1990

PO #M12615

REPORT ON: DIRT

SAMPLE IDENTIFICATION: Submitted 11/27/89 and identified as shown:

Acidyard construction dug out dirt 3200 11-27-3200-M12615

The 96 hour static fish bioassay was performed in accordance with Washington State Department of Ecology methods, with results as shown below.

96 HOUR STATIC FISH BIOASSAY

Description of Waste

Acidyard construction dug out dirt 3200 11-27-3200-M12615

Description of Test Set Up

The test was performed in triplicate at concentrations of 1000 ppm, 100 ppm, and 0 ppm in glass aquaria (8" x 10" x 14") containing 30 liters of tap water with a hardness of about 110 mg/L. Light was provided with fluorescent lamps for 18 hours per day. All test and control aquaria contained 10 organisms. The tanks were aerated during the first 24 hours of the test period only. The test was started on 12/4/89. The waste was added to the tanks directly.

Test Organism Information:

Species:	Pimephales promelas (fathead minnow)
Mean Weight:	0.62 grams
Mean Length:	4.2 cm
Longest:	4.8 cm
Shortest:	3.9 cm
Ratio (long/short):	1.2
Ratio of flesh to water:	0.21 grams/L
Source of test organisms:	Kurtz Fish Hatchery
Diseases observed:	None
Food used:	Wardley's dry flake food for large cichlids
History:	Fish were acclimated at least 2 weeks prior to test

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Observations of Effects or Symptoms:

None

Mortalities Observed in 30 test organisms:

	Mortalities	%
1000 parts per million	6	20
100 parts per million	3	10
control	3	10

Water Chemistry Results: (mean +/- standard deviation)

	1000 ppm	100 ppm	control
Dissolved Oxygen, mg/L	7.2 ± 0.44	7.0 ± 0.59	7.2 ± 0.50
pH	6.4 ± 0.19	6.4 ± 0.16	6.2 ± 0.07
Temperature, degrees C	22. ± 0.00	22. ± 0.0	22. ± 0.0
Hardness, mg/L	128. ± 0.00	129. ± 1.0	129. ± 1.1
Alkalinity, mg/L	23. ± 16.0	33. ± 1.0	34. ± 0.0
Conductivity, micromhos/cm	268. ± 20.	294. ± 16.	293. ± 11.

Conclusions

Based on an evaluation of test mortalities (corrected for control mortality), this waste would be classified as undesignated waste.

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Water Chemistry Test Methods

Dissolved Oxygen	SM*, part 421B
pH	SM, part 423
Total Hardness	SM, part 314B
Total Alkalinity	SM, part 403
Specific Conductance	SM, part 205

*SM = Standard Methods, 15th edition

Respectfully submitted,

Laucks Testing Laboratories, Inc.

J. M. Owens

JMO:veg